REMARKS

Claims 1-40 are pending in the application. Claim 1, an independent claims, has been amended by replacing intended use language with operative language. Claim 1 has also been broadened by removing reference to a monitor.

Dependent claim 3 has been canceled.

Dependent claim13 has been canceled.

Independent claim 31 has been amended to replace intended use language with operative language. The claim has been broadened by removing reference to a monitor. A typographic error has been corrected.

Claims 32 -34 have been amended by correcting their dependency and removing extraneous wording.

Claims 35- 38 have been amended by correcting their dependency.

Claim 39 has been amended by correcting its dependency and removing extraneous wording.

Claim 40 has been amended by correcting its dependency.

New claim 41 has been added which specifies that the actuator is a mechanical actuator. New claim 42 further specifies that the actuator comprises a tuning fork.

No new matter has been added by the amendments. Reconsideration of the application as amended is respectfully requested. The Examiner's objections and rejections are addressed in substantially the same order as in the reference office action.

NOTICE OF NON-COMPLIANT AMENDMENT

The Notice of Non-compliant amendment states that, with reference to claim 18, "the listing of claims does not include the text of all pending claims (including withdrawn claims)." Applicant notes that claim 18 shows the full text of the claim and its status (previously presented). Clarification of this statement is respectfully requested.

OBJECTIONS TO THE CLAIMS

The examiner has objected to claim 3 for referring to a downhole tool when the base claim is directed towards an apparatus. Claim 3 has been canceled.

REJECTION UNDER 35 USC § 102

Claims 1, 11 and 31 stand rejected under 35 USC § 102 as being anticipated by *Birchak* (US5741962).

The present invention is an apparatus, method and system for evaluating the property of a downhole fluid. A resonator that is in contact with the fluid is actuated. A processor determines from the resonance of the resonator a property of the downhole fluid.

Before discussing the *Birchak* reference, it is helpful to get a clear understanding of what the term "resonator" means. This is defined in the Merriam Webster Online Dictionary as:

Something that resounds or resonates.

The term "resonate" is further defined as:

to produced or exhibit resonance.

The term "resonance" is defined as:

a vibration of large amplitude in a mechanical or electrical system caused by a relatively small periodic stimulus of the same or nearly the same period as the natural vibration period of the system.

Turning now to the *Birchak* reference, what is disclosed therein is a closed-loop system for in situ testing of formation fluid conditions and for selectively collecting substantially mud filtrate free formation fluid samples at original formation conditions. The system determines the density and compressibility of the formation fluid in the flowline from the speed of sound in the fluid and acoustic impedance of the fluid. **See Abstract.**

A word search of *Birchak* shows no use of the word "resonator" or any variant thereof. The Examiner has cited **109** in **Fig. 2** of *Birchak* as disclosing a resonator. Applicant respectfully disagrees. Element **109** is one of the two opposing faces of an acoustic transducer **108** that is placed against the delay line **104.** It is further noted that The transducer **108** may be used as an acoustic signal transmitter or a receiver. **See col. 5 lines 28-32.**

The operation of the device is further described as "when an electrical signal of amplitude V_0 is applied to the transducer **108**, an acoustic pressure wave shown in **FIG. 4A** is produced after a short time delay (t_{01}). This acoustic pressure wave travels in all adjacent media." **See col. 6 lines 33-35.**

Turning now to **Fig. 4A** , the top signal is the applied input voltage and the second signal is the generated acoustic pressure wave. This is of fairly short duration, as it must be if travel time measurements are to be made. It does not exhibit any "resonance" as discussed above. It is also well known in the art that a resonating or ringing signal is extremely undesirable for making travel-time measurements due to the difficulty in performing cross-correlation between the transmitted and received signals, the usual method of determining travel-times.

The bottom line is that the transducer **108** of *Birchak* is **not** a resonator, cannot be used as a resonator, there is no teaching or suggestion in *Birchak* of a resonator, and a resonator would be extremely undesirable for use in *Birchak.*

In order for a claimed invention to be unpatentable under 35 USC § 102, a single prior art reference must disclose each and every limitation of the claim arranged as in the claim. This is clearly lacking in the present case as *Birchak* does not disclose or even suggest a resonator. Accordingly, applicant respectfully submits that claims 1, 11 and 31 are patentable under 35 USC § 102 over *Birchak.* Furthermore, claims 2, 4-10, 12, 14-20, 32-42 are which depend upon one of the three independent claims are also patentable under 35 USC § 102 over *Birchak.*

Furthermore, there is no suggestion in *Birchak* of using a resonator. Accordingly, claims 2, 4-10, 12, 14-20, 32-42 are which depend upon one of the three independent claims are also patentable under 35 USC § 103 over *Birchak.*

REJECTION UNDER 35 USC 103

Claims 2-4, 12-14, 32-34 stand rejected under 35 USC § 103 over *Birchak* in view of *Kleinberg* (US63465813).

Applicant fails to see the relevance of the *Kleinberg* reference. It is in the field of nuclear magnetic resonance and relates to precesion of nuclear spins using a pulsed magnetic field in the presence of a static field. The nuclear spin resonance is completely unrelated to the field of acoustics (*Birchak*). The relation between NMR relaxation time and physical properties of a fluid provide no motivation to use a relation between a mechanical resonance of a resonator and a fluid property.

A review of *Kleinberg* shows no teaching or suggestion of the particular element of the independent claims discussed above with respect to the rejection under 35 USC § 102 of the independent claims. Accordingly, independent claims 1, 11, and 31 are also patentable under 35 USC §§102-103 over *Birchak* in view of *Kleinberg*. Furthermore, all the dependent claims are also patentable under 35 USC §§102-103 over *Birchak* in view of *Kleinberg*.

Claims 5-6, 15-18 and 35-36 stand rejected under 35 USC § 103 over *Birchak* in view of *Kleinberg* and further in view of *McFarland* (US6182499).

The patentability of all of the dependent claims has already been addressed above. The application is now believed to be in condition for allowance.

The Commissioner is hereby authorized to charge any fee and credit any overpayment associated with this response to **Deposit Account No. 02-0429(584-37008-USCP).**

Respectfully submitted,

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